



Qualification Pack

Technician- Tool and Die

QP Code: MSME/CSC/Q5101

Version: 1.0

NSQF Level: 4.0

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Qualification Pack

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Qualification Pack

MSME/CSC/Q5101: Technician- Tool and Die

Brief Job Description

The qualification containing different modules which is required for the job role Tool & Die Engineering

Personal Attributes

The qualification containing different modules which is required for the job role Tool & Die Engineering

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [MSME/CSC/N5119: PROJECT WORK-TOOL & DIE MAKING](#)
2. [MSME/CSC/N5115: WORKSHOP PRACTICE IV](#)
3. [MSME/CSC/N5114: TOOL DESIGN- PRESS TOOL \(ADVANCED\)](#)
4. [MSME/CSC/N5113: TOOL DESIGN- PRESS TOOL \(ADVANCED\)](#)
5. [MSME/CSC/N5112: TOOL DESIGN- PLASTIC MOULD](#)
6. [MSME/CSC/N5111: TOOL DESIGN- PLASTIC MOULD](#)
7. [MSME/CSC/N5109: PROJECT WORK-TOOL & DIE MAKING](#)
8. [MSME/CSC/N5105: WORKSHOP PRACTICEIII](#)
9. [MSME/CSC/N5104: TOOL DESIGN JIGS, FIXTURE&GAUGES](#)
10. [MSME/CSC/N5103: TOOL DESIGN JIGS FIXTURE&GAUGES](#)
11. [MSME/CSC/N5102: TOOL DESIGN- PRESS TOOL](#)
12. [MSME/CSC/N5101: TOOL DESIGN- PRESS TOOL](#)
13. [MSME/CSC/N5120: EMPLOYBILITY SKILL 000](#)
14. [MSME/CSC/N5118: INDUSTRIAL ENGINEERING](#)
15. [MSME/CSC/N5117: PRODUCTION, PLANNING AND CONTROL, ESTIMATION & COSTING](#)
16. [MSME/CSC/N5116: ENVIRONMENTAL SCIENCE](#)
17. [MSME/CSC/N5110: EMPLOYBILITY SKILL 00](#)



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18. [MSME/CSC/N5108: BASICS ELECTRICALS & ELECTRONICS](#)

19. [MSME/CSC/N5107: MATERIAL SCIENCE AND METALLURGY](#)

20. [MSME/CSC/N5106: STRENGTH OF MATERIALS](#)

Qualification Pack (QP) Parameters

Sector	Capital Goods
Sub-Sector	Machine Tools
Occupation	Technician - Tool & Die
Country	India
NSQF Level	4.0
Credits	40
Aligned to NCO/ISCO/ISIC Code	3115.13 (Tool Room Supervisor)
Minimum Educational Qualification & Experience	Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma with NA of experience OR Not Applicable (Passed- Jr. Technician Convectional Machine (Level-3.5) from MSME Technology Center) with NA of experience OR 10th Class + I.T.I (10th Pass 2 years ITI in relevant trade*) OR Previous relevant Qualification of NSQF Level (Passed- Level-3.5 from MSME Technology Center)
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	15 Years
Last Reviewed On	NA
Next Review Date	30/04/2027
NSQC Approval Date	30/04/2024



Qualification Pack

Version	1.0
Reference code on NQR	QG-04-CG-02413-2024-V1-MSME
NQR Version	1.0



Qualification Pack

MSME/CSC/N5119: PROJECT WORK-TOOL & DIE MAKING

Description

Get knowledge about practical work in workshop.

Scope

The scope covers the following :

- Get knowledge about practical work in workshop.

Elements and Performance Criteria

MSME/DTE/31 PROJECT WORK-TOOL & DIE MAKING

To be competent, the user/individual on the job must be able to:

- PC1.**
- Project Report Mentioning the process and procedure carried by the trainee for completing the assign task duly endorsed by the authorized personnel and The report must contain:
 - ● Details of Department/ Organization
 - ● Brief Job description & work activity
 - Specific problem faces if any with the solution.
 - ● Technical Books referred during the OJT
 - ● Conclusion



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/31 PROJECT WORK-TOOL & DIE MAKING</i>	-	100	-	-
PC1. • Project Report Mentioning the process and procedure carried by • the trainee for completing the assign task duly endorsed by the • authorized personnel and The report must contain: • ● Details of Department/ Organization • ● Brief Job description & work activity • Specific problem faces if any with the solution. • ● Technical Books referred during the OJT • ● Conclusion	-	-	-	-
NOS Total	-	100	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5119
NOS Name	PROJECT WORK-TOOL & DIE MAKING
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	3
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5115: WORKSHOP PRACTICE IV

Description

Get knowledge about practical work in workshop.

Scope

The scope covers the following :

- Get knowledge about practical work in workshop.

Elements and Performance Criteria

MSME/DTE/27 WORKSHOP PRACTICE-IV

To be competent, the user/individual on the job must be able to:

PC1. Different types of machining process.

PC2. Understand different machines used for different parts



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/27 WORKSHOP PRACTICE-IV</i>	-	100	-	-
PC1. Different types of machining process.	-	-	-	-
PC2. Understand different machines used for different parts	-	-	-	-
NOS Total	-	100	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5115
NOS Name	WORKSHOP PRACTICE IV
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	7
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5114: TOOL DESIGN- PRESS TOOL (ADVANCED)

Description

Understand different types of tool.

Scope

The scope covers the following :

- Understand different types of tool.

Elements and Performance Criteria

MSME/DTE/26 TOOL DESIGN- PRESS TOOL (ADVANCED)

To be competent, the user/individual on the job must be able to:

- PC1.** Understand different parameter for cutting and noncutting operations.
- PC2.**
 - Get knowledge about strip layout, principles about
 - operations, different sheet metals, and require parameter to
 - band or cut it
- PC3.**
 - Get knowledge about different material their uses for
 - manufacturing of elements of press tool.
- PC4.**
 - Get knowledge for manufacturing different process to
 - produce elements.
- PC5.**
 - Get knowledge about design of element and its
 - requirement.
- PC6.** Get knowledge about the design of press tool.
- PC7.**
 - Get knowledge of different parameters required during
 - design.
- PC8.** Selection of strip layout
- PC9.**
 - Conceptual designing the model and other components
 - of press tool.
- PC10.** Selection of different material for different element.
- PC11.** Selection of bending parameters and bending operation.
- PC12.** Understand conceptual design and its application
- PC13.**
 - Get knowledge of deferent require parameter during
 - design.
- PC14.** How to create perfect design of press tool.
- PC15.** Selection of different material for different element.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/26 TOOL DESIGN- PRESS TOOL (ADVANCED)</i>	-	100	-	-
PC1. Understand different parameter for cutting and noncutting operations.	-	-	-	-
PC2. • Get knowledge about strip layout, principles about • operations, different sheet metals, and require parameter to • band or cut it	-	-	-	-
PC3. • Get knowledge about different material their uses for • manufacturing of elements of press tool.	-	-	-	-
PC4. • Get knowledge for manufacturing different process to • produce elements.	-	-	-	-
PC5. • Get knowledge about design of element and its • requirement.	-	-	-	-
PC6. Get knowledge about the design of press tool.	-	-	-	-
PC7. • Get knowledge of different parameters required during • design.	-	-	-	-
PC8. Selection of strip layout	-	-	-	-
PC9. • Conceptual designing the model and other components • of press tool.	-	-	-	-
PC10. Selection of different material for different element.	-	-	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. Selection of bending parameters and bending operation.	-	-	-	-
PC12. Understand conceptual design and its application	-	-	-	-
PC13. • Get knowledge of deferent require parameter during • design.	-	-	-	-
PC14. How to create perfect design of press tool.	-	-	-	-
PC15. Selection of different material for different element.	-	-	-	-
NOS Total	-	100	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5114
NOS Name	TOOL DESIGN- PRESS TOOL (ADVANCED)
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5113: TOOL DESIGN- PRESS TOOL (ADVANCED)

Description

Understand different types of tool.

Scope

The scope covers the following :

- Understand different types of tool.

Elements and Performance Criteria

MSME/DTE/26 TOOL DESIGN- PRESS TOOL (ADVANCED)

To be competent, the user/individual on the job must be able to:

- PC1.** Understand different parameter for cutting and noncutting operations.
- PC2.**
 - Get knowledge about strip layout, principles about
 - operations, different sheet metals, and require parameter to
 - band or cut it
- PC3.**
 - Get knowledge about different material their uses for
 - manufacturing of elements of press tool.
- PC4.**
 - Get knowledge for manufacturing different process to
 - produce elements.
- PC5.**
 - Get knowledge about design of element and its
 - requirement.
- PC6.** Get knowledge about the design of press tool.
- PC7.**
 - Get knowledge of different parameters required during
 - design.
- PC8.** Selection of strip layout
- PC9.**
 - Conceptual designing the model and other components
 - of press tool.
- PC10.** Selection of different material for different element.
- PC11.** Selection of bending parameters and bending operation.
- PC12.** Understand conceptual design and its application
- PC13.**
 - Get knowledge of deferent require parameter during
 - design.
- PC14.** How to create perfect design of press tool.
- PC15.** Selection of different material for different element.



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/26 TOOL DESIGN- PRESS TOOL (ADVANCED)</i>	100	-	-	-
PC1. Understand different parameter for cutting and noncutting operations.	-	-	-	-
PC2. • Get knowledge about strip layout, principles about • operations, different sheet metals, and require parameter to • band or cut it	-	-	-	-
PC3. • Get knowledge about different material their uses for • manufacturing of elements of press tool.	-	-	-	-
PC4. • Get knowledge for manufacturing different process to • produce elements.	-	-	-	-
PC5. • Get knowledge about design of element and its • requirement.	-	-	-	-
PC6. Get knowledge about the design of press tool.	-	-	-	-
PC7. • Get knowledge of different parameters required during • design.	-	-	-	-
PC8. Selection of strip layout	-	-	-	-
PC9. • Conceptual designing the model and other components • of press tool.	-	-	-	-
PC10. Selection of different material for different element.	-	-	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. Selection of bending parameters and bending operation.	-	-	-	-
PC12. Understand conceptual design and its application	-	-	-	-
PC13. • Get knowledge of deferent require parameter during • design.	-	-	-	-
PC14. How to create perfect design of press tool.	-	-	-	-
PC15. Selection of different material for different element.	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5113
NOS Name	TOOL DESIGN- PRESS TOOL (ADVANCED)
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5112: TOOL DESIGN- PLASTIC MOULD

Description

Understand different types of moulding methods.

Scope

The scope covers the following :

- Understand different types of moulding methods.

Elements and Performance Criteria

MSME/DTE/25 TOOL DESIGN- PLASTIC MOULD

To be competent, the user/individual on the job must be able to:

- PC1.** Understand classification of plastic.
- PC2.** Get knowledge about concept of mould.
- PC3.** Application of mould.
- PC4.** Different types of injection moulding machine
- PC5.** Understanding parameter of moulding machine.
- PC6.** Understanding different types of moulding machine
- PC7.** Understanding mould and material use in mould
- PC8.** Understand different component use in mould.
- PC9.**
 - Get knowledge about different material use different component.
- PC10.**
 - Understand function and application of different component of mould.
- PC11.**
 - Understand cooling system in mould and its need in plastic mould.
- PC12.**
 - Get knowledge about different parts of mould according to different types of mould.
- PC13.**
 - Get knowledge about parting surface , relief of parting surface
- PC14.** Drawing different design for different types of mould
- PC15.** Get knowledge about selection of material for all parts.
- PC16.** Understand process of manufacturing of each parts.
- PC17.** Cost of manufacturing.
- PC18.** Perfect design of plastic mould.
- PC19.** Detailed drawings for manufacturing of mould



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/25 TOOL DESIGN- PLASTIC MOULD</i>	-	100	-	-
PC1. Understand classification of plastic.	-	-	-	-
PC2. Get knowledge about concept of mould.	-	-	-	-
PC3. Application of mould.	-	-	-	-
PC4. Different types of injection moulding machine	-	-	-	-
PC5. Understanding parameter of moulding machine.	-	-	-	-
PC6. Understanding different types of moulding machine	-	-	-	-
PC7. Understanding mould and material use in mould	-	-	-	-
PC8. Understand different component use in mould.	-	-	-	-
PC9. • Get knowledge about different material use different • component.	-	-	-	-
PC10. • Understand function and application of different • component of mould.	-	-	-	-
PC11. • Understand cooling system in mould and its need in • plastic mould.	-	-	-	-
PC12. • Get knowledge about different parts of mould • according to different types of mould.	-	-	-	-
PC13. • Get knowledge about parting surface , relief of parting • surface	-	-	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. Drawing different design for different types of mould	-	-	-	-
PC15. Get knowledge about selection of material for all parts.	-	-	-	-
PC16. Understand process of manufacturing of each parts.	-	-	-	-
PC17. Cost of manufacturing.	-	-	-	-
PC18. Perfect design of plastic mould.	-	-	-	-
PC19. Detailed drawings for manufacturing of mould	-	-	-	-
NOS Total	-	100	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5112
NOS Name	TOOL DESIGN- PLASTIC MOULD
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5111: TOOL DESIGN- PLASTIC MOULD

Description

Understand different types of moulding methods.

Scope

The scope covers the following :

- Understand different types of moulding methods.

Elements and Performance Criteria

MSME/DTE/25 TOOL DESIGN- PLASTIC MOULD

To be competent, the user/individual on the job must be able to:

- PC1.** Understand classification of plastic.
- PC2.** Get knowledge about concept of mould.
- PC3.** Application of mould.
- PC4.** Different types of injection moulding machine
- PC5.** Understanding parameter of moulding machine.
- PC6.** Understanding different types of moulding machine
- PC7.** Understanding mould and material use in mould
- PC8.** Understand different component use in mould.
- PC9.**
 - Get knowledge about different material use different component.
- PC10.**
 - Understand function and application of different component of mould.
- PC11.**
 - Understand cooling system in mould and its need in plastic mould.
- PC12.**
 - Get knowledge about different parts of mould according to different types of mould.
- PC13.**
 - Get knowledge about parting surface , relief of parting surface
- PC14.** Drawing different design for different types of mould
- PC15.** Get knowledge about selection of material for all parts.
- PC16.** Understand process of manufacturing of each parts.
- PC17.** Cost of manufacturing.
- PC18.** Perfect design of plastic mould.
- PC19.** Detailed drawings for manufacturing of mould



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/25 TOOL DESIGN- PLASTIC MOULD</i>	100	-	-	-
PC1. Understand classification of plastic.	-	-	-	-
PC2. Get knowledge about concept of mould.	-	-	-	-
PC3. Application of mould.	-	-	-	-
PC4. Different types of injection moulding machine	-	-	-	-
PC5. Understanding parameter of moulding machine.	-	-	-	-
PC6. Understanding different types of moulding machine	-	-	-	-
PC7. Understanding mould and material use in mould	-	-	-	-
PC8. Understand different component use in mould.	-	-	-	-
PC9. • Get knowledge about different material use different • component.	-	-	-	-
PC10. • Understand function and application of different • component of mould.	-	-	-	-
PC11. • Understand cooling system in mould and its need in • plastic mould.	-	-	-	-
PC12. • Get knowledge about different parts of mould • according to different types of mould.	-	-	-	-
PC13. • Get knowledge about parting surface , relief of parting • surface	-	-	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. Drawing different design for different types of mould	-	-	-	-
PC15. Get knowledge about selection of material for all parts.	-	-	-	-
PC16. Understand process of manufacturing of each parts.	-	-	-	-
PC17. Cost of manufacturing.	-	-	-	-
PC18. Perfect design of plastic mould.	-	-	-	-
PC19. Detailed drawings for manufacturing of mould	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5111
NOS Name	TOOL DESIGN- PLASTIC MOULD
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5109: PROJECT WORK-TOOL & DIE MAKING

Description

Get knowledge about practical work in workshop.

Scope

The scope covers the following :

- Get knowledge about practical work in workshop.

Elements and Performance Criteria

MSME/DTE/23 PROJECT WORK-TOOL & DIE MAKING

To be competent, the user/individual on the job must be able to:

- PC1.**
- Project Report Mentioning the process and procedure carried by the trainee for completing the assign task duly endorsed by the authorized personnel and The report must contain:
 - ● Details of Department/ Organization
 - ● Brief Job description & work activity
 - Specific problem faces if any with the solution.
 - ● Technical Books referred during the OJT
 - ● Conclusion



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/23 PROJECT WORK-TOOL & DIE MAKING</i>	-	100	-	-
PC1. • Project Report Mentioning the process and procedure carried by the trainee for completing the assign task duly endorsed by the authorized personnel and The report must contain: • ● Details of Department/ Organization • ● Brief Job description & work activity • Specific problem faces if any with the solution. • ● Technical Books referred during the OJT • ● Conclusion	-	-	-	-
NOS Total	-	100	-	-



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National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5109
NOS Name	PROJECT WORK-TOOL & DIE MAKING
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	3
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5105: WORKSHOP PRACTICEIII

Description

Get knowledge about practical work in workshop.

Scope

The scope covers the following :

- Get knowledge about practical work in workshop.

Elements and Performance Criteria

MSME/DTE/19 WORKSHOP PRACTICE-III

To be competent, the user/individual on the job must be able to:

- PC1.** Understand different machines.
- PC2.**
- Making multifunctional tools integrating skills of
 - Bench work, Turning, Milling, Surface grinding,
 - Cylindrical grinding



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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/19 WORKSHOP PRACTICE-III</i>	-	100	-	-
PC1. Understand different machines.	-	-	-	-
PC2. • Making multifunctional tools integrating skills of • Bench work, Turning, Milling, Surface grinding, • Cylindrical grinding	-	-	-	-
NOS Total	-	100	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5105
NOS Name	WORKSHOP PRACTICEIII
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	6
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5104: TOOL DESIGN JIGS, FIXTURE&GAUGES

Description

Understand the fundamental concepts and terminology related to jigs, fixtures, and gauges.

Scope

The scope covers the following :

- Understand the fundamental concepts and terminology related to jigs, fixtures, and gauges.

Elements and Performance Criteria

MSME/DTE/18 TOOL DESIGN- JIGS, FIXTURE&GAUGES

To be competent, the user/individual on the job must be able to:

- PC1.** Understand about different types of tool.
- PC2.** Get knowledge about concept of jig and fixture.
- PC3.**
 - Understand design fundamental of jig and fixture. And
 - advantages and disadvantages of jig and fixture
- PC4.**
 - Understand the fundamental concepts and terminology
 - related to jigs, fixtures, and gauges.
- PC5.**
 - Demonstrate the ability to design jigs and fixtures for
 - specific machining and assembly operations.
- PC6.** Tooling elements and accessories
- PC7.**
 - Develop an understanding of the principles behind gauge
 - design and measurement
- PC8.** The role of jigs, fixtures, and gauges in quality control
- PC9.** Gauge use in measurement tasks
- PC10.** Safety guidelines in jig, fixture, and gauge use
- PC11.** Maintenance and care practices



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/18 TOOL DESIGN- JIGS, FIXTURE&GAUGES</i>	-	100	-	-
PC1. Understand about different types of tool.	-	-	-	-
PC2. Get knowledge about concept of jig and fixture.	-	-	-	-
PC3. - Understand design fundamental of jig and fixture. And - advantages and disadvantages of jig and fixture	-	-	-	-
PC4. - Understand the fundamental concepts and terminology - related to jigs, fixtures, and gauges.	-	-	-	-
PC5. - Demonstrate the ability to design jigs and fixtures for - specific machining and assembly operations.	-	-	-	-
PC6. Tooling elements and accessories	-	-	-	-
PC7. - Develop an understanding of the principles behind gauge - design and measurement	-	-	-	-
PC8. The role of jigs, fixtures, and gauges in quality control	-	-	-	-
PC9. Gauge use in measurement tasks	-	-	-	-
PC10. Safety guidelines in jig, fixture, and gauge use	-	-	-	-
PC11. Maintenance and care practices	-	-	-	-
NOS Total	-	100	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5104
NOS Name	TOOL DESIGN JIGS, FIXTURE&GAUGES
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5103: TOOL DESIGN JIGS FIXTURE&GAUGES

Description

Understand the fundamental concepts and terminology related to jigs, fixtures, and gauges.

Scope

The scope covers the following :

- Understand the fundamental concepts and terminology related to jigs, fixtures, and gauges.

Elements and Performance Criteria

MSME/DTE/18 TOOL DESIGN- JIGS, FIXTURE&GAUGES

To be competent, the user/individual on the job must be able to:

- PC1.** Understand about different types of tool.
- PC2.** Get knowledge about concept of jig and fixture.
- PC3.**
 - Understand design fundamental of jig and fixture. And
 - advantages and disadvantages of jig and fixture
- PC4.**
 - Understand the fundamental concepts and terminology
 - related to jigs, fixtures, and gauges.
- PC5.**
 - Demonstrate the ability to design jigs and fixtures for
 - specific machining and assembly operations.
- PC6.** Tooling elements and accessories
- PC7.**
 - Develop an understanding of the principles behind gauge
 - design and measurement
- PC8.** The role of jigs, fixtures, and gauges in quality control
- PC9.** Gauge use in measurement tasks
- PC10.** Safety guidelines in jig, fixture, and gauge use
- PC11.** Maintenance and care practices



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/18 TOOL DESIGN- JIGS, FIXTURE&GAUGES</i>	100	-	-	-
PC1. Understand about different types of tool.	-	-	-	-
PC2. Get knowledge about concept of jig and fixture.	-	-	-	-
PC3. - Understand design fundamental of jig and fixture. And - advantages and disadvantages of jig and fixture	-	-	-	-
PC4. - Understand the fundamental concepts and terminology - related to jigs, fixtures, and gauges.	-	-	-	-
PC5. - Demonstrate the ability to design jigs and fixtures for - specific machining and assembly operations.	-	-	-	-
PC6. Tooling elements and accessories	-	-	-	-
PC7. - Develop an understanding of the principles behind gauge - design and measurement	-	-	-	-
PC8. The role of jigs, fixtures, and gauges in quality control	-	-	-	-
PC9. Gauge use in measurement tasks	-	-	-	-
PC10. Safety guidelines in jig, fixture, and gauge use	-	-	-	-
PC11. Maintenance and care practices	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5103
NOS Name	TOOL DESIGN JIGS FIXTURE&GAUGES
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5102: TOOL DESIGN- PRESS TOOL

Description

Understand different types of tool.

Scope

The scope covers the following :

- Understand different types of tool.

Elements and Performance Criteria

MSME/DTE/17 TOOL DESIGN- PRESS TOOL

To be competent, the user/individual on the job must be able to:

- PC1.** Concept of press tool.
- PC2.** To know about the sheet metal and strip layout
- PC3.**
 - Understand design fundamental of presses and
 - advantages and disadvantages of press tool
- PC4.** Get knowledge about use of press tool.
- PC5.** Selection of proper tool parts as required.
- PC6.** Understand different operation done on press tool.
- PC7.** Understand requirement of press tool operation.
- PC8.** Understand different operations on press tools.
- PC9.**
 - Get knowledge about strip layout, principles about
 - operations, different sheet metals, and require parameter
 - to band or cut it.
- PC10.**
 - Understand the different component of press tools like
 - cutting die, top plate, bottom plate, guide pillar, guide
 - bush, stripper plate etc.
- PC11.**
 - Understanding about the different component used in
 - design of press tool.
- PC12.**
 - Get knowledge for manufacturing different process to
 - produce elements.
- PC13.**
 - Get knowledge about design of element and its
 - requirement.
- PC14.** Get knowledge about the design of press tool.
- PC15.**
 - Get knowledge of different parameters required during
 - design.
- PC16.** Selection of strip layout
- PC17.**
 - Conceptual designing the model and other components
 - of press tool.
- PC18.** Selection of different material for different element.
- PC19.** Selection of bending parameters and bending operation.



Qualification Pack

- PC20.** Conceptual design and its application
- PC21.** Design of press tool.
- PC22.** Selection of different material for different element.
- PC23.** • Get knowledge about parameter to use different press
• for different press tool operation.
- PC24.** Understand selection of press for operation.
- PC25.** • Get knowledge for selection of press by its height,
• power etc.



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/17 TOOL DESIGN- PRESS TOOL</i>	-	100	-	-
PC1. Concept of press tool.	-	-	-	-
PC2. To know about the sheet metal and strip layout	-	-	-	-
PC3. • Understand design fundamental of presses and • advantages and disadvantages of press tool	-	-	-	-
PC4. Get knowledge about use of press tool.	-	-	-	-
PC5. Selection of proper tool parts as required.	-	-	-	-
PC6. Understand different operation done on press tool.	-	-	-	-
PC7. Understand requirement of press tool operation.	-	-	-	-
PC8. Understand different operations on press tools.	-	-	-	-
PC9. • Get knowledge about strip layout, principles about • operations, different sheet metals, and require parameter • to band or cut it.	-	-	-	-
PC10. • Understand the different component of press tools like • cutting die, top plate, bottom plate, guide pillar, guide • bush, stripper plate etc.	-	-	-	-
PC11. • Understanding about the different component used in • design of press tool.	-	-	-	-
PC12. • Get knowledge for manufacturing different process to • produce elements.	-	-	-	-



Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. • Get knowledge about design of element and its requirement.	-	-	-	-
PC14. Get knowledge about the design of press tool.	-	-	-	-
PC15. • Get knowledge of different parameters required during • design.	-	-	-	-
PC16. Selection of strip layout	-	-	-	-
PC17. • Conceptual designing the model and other components • of press tool.	-	-	-	-
PC18. Selection of different material for different element.	-	-	-	-
PC19. Selection of bending parameters and bending operation.	-	-	-	-
PC20. Conceptual design and its application	-	-	-	-
PC21. Design of press tool.	-	-	-	-
PC22. Selection of different material for different element.	-	-	-	-
PC23. • Get knowledge about parameter to use different press • for different press tool operation.	-	-	-	-
PC24. Understand selection of press for operation.	-	-	-	-
PC25. • Get knowledge for selection of press by its height, • power etc.	-	-	-	-
NOS Total	-	100	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5102
NOS Name	TOOL DESIGN- PRESS TOOL
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5101: TOOL DESIGN- PRESS TOOL

Description

Understand different types of tool.

Scope

The scope covers the following :

- Understand different types of tool.

Elements and Performance Criteria

MSME/DTE/17 TOOL DESIGN- PRESS TOOL

To be competent, the user/individual on the job must be able to:

- PC1.** Concept of press tool.
- PC2.** To know about the sheet metal and strip layout
- PC3.**
 - Understand design fundamental of presses and
 - advantages and disadvantages of press tool
- PC4.** Get knowledge about use of press tool.
- PC5.** Selection of proper tool parts as required.
- PC6.** Understand different operation done on press tool.
- PC7.** Understand requirement of press tool operation.
- PC8.** Understand different operations on press tools.
- PC9.**
 - Get knowledge about strip layout, principles about
 - operations, different sheet metals, and require parameter
 - to band or cut it.
- PC10.**
 - Understand the different component of press tools like
 - cutting die, top plate, bottom plate, guide pillar, guide
 - bush, stripper plate etc.
- PC11.**
 - Understanding about the different component used in
 - design of press tool.
- PC12.**
 - Get knowledge for manufacturing different process to
 - produce elements.
- PC13.**
 - Get knowledge about design of element and its
 - requirement.
- PC14.** Get knowledge about the design of press tool.
- PC15.**
 - Get knowledge of different parameters required during
 - design.
- PC16.** Selection of strip layout
- PC17.**
 - Conceptual designing the model and other components
 - of press tool.
- PC18.** Selection of different material for different element.
- PC19.** Selection of bending parameters and bending operation.



Qualification Pack

- PC20.** Conceptual design and its application
- PC21.** Design of press tool.
- PC22.** Selection of different material for different element.
- PC23.**
 - Get knowledge about parameter to use different press
 - for different press tool operation.
- PC24.** Understand selection of press for operation.
- PC25.**
 - Get knowledge for selection of press by its height,
 - power etc.



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/17 TOOL DESIGN- PRESS TOOL</i>	100	-	-	-
PC1. Concept of press tool.	-	-	-	-
PC2. To know about the sheet metal and strip layout	-	-	-	-
PC3. • Understand design fundamental of presses and • advantages and disadvantages of press tool	-	-	-	-
PC4. Get knowledge about use of press tool.	-	-	-	-
PC5. Selection of proper tool parts as required.	-	-	-	-
PC6. Understand different operation done on press tool.	-	-	-	-
PC7. Understand requirement of press tool operation.	-	-	-	-
PC8. Understand different operations on press tools.	-	-	-	-
PC9. • Get knowledge about strip layout, principles about • operations, different sheet metals, and require parameter • to band or cut it.	-	-	-	-
PC10. • Understand the different component of press tools like • cutting die, top plate, bottom plate, guide pillar, guide • bush, stripper plate etc.	-	-	-	-
PC11. • Understanding about the different component used in • design of press tool.	-	-	-	-
PC12. • Get knowledge for manufacturing different process to • produce elements.	-	-	-	-



Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. • Get knowledge about design of element and its requirement.	-	-	-	-
PC14. Get knowledge about the design of press tool.	-	-	-	-
PC15. • Get knowledge of different parameters required during • design.	-	-	-	-
PC16. Selection of strip layout	-	-	-	-
PC17. • Conceptual designing the model and other components • of press tool.	-	-	-	-
PC18. Selection of different material for different element.	-	-	-	-
PC19. Selection of bending parameters and bending operation.	-	-	-	-
PC20. Conceptual design and its application	-	-	-	-
PC21. Design of press tool.	-	-	-	-
PC22. Selection of different material for different element.	-	-	-	-
PC23. • Get knowledge about parameter to use different press • for different press tool operation.	-	-	-	-
PC24. Understand selection of press for operation.	-	-	-	-
PC25. • Get knowledge for selection of press by its height, • power etc.	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5101
NOS Name	TOOL DESIGN- PRESS TOOL
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5120: EMPLOYABILITY SKILL 000

Description

Understand about employability

Scope

The scope covers the following :

- Understand about employability

Elements and Performance Criteria

MSME/DTE/32 EMPLOYABILITY SKILL

To be competent, the user/individual on the job must be able to:

- PC1.** • Calculate income
 - and expenditure for budgeting
- PC2.** • Demonstrate how to conduct offline and online financial
 - transactions, safely and securely and check
 - passbook/statement
- PC3.** • Operate digital
 - devices and use the associated applications and features,
 - safely and securely
- PC4.** • Create an e-mail id
 - and follow e- mail etiquette to exchange e -mails



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/32 EMPLOYABILITY SKILL</i>	100	-	-	-
PC1. - Calculate income - and expenditure for budgeting	-	-	-	-
PC2. - Demonstrate how to conduct offline and online financial - transactions, safely and securely and check - passbook/statement	-	-	-	-
PC3. - Operate digital - devices and use the associated applications and features, - safely and securely	-	-	-	-
PC4. - Create an e-mail id - and follow e- mail etiquette to exchange e - mails	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5120
NOS Name	EMPLOYABILITY SKILL 000
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	2
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5118: INDUSTRIAL ENGINEERING

Description

Understand Concepts, principles and procedure of industrial engineering

Scope

The scope covers the following :

- Understand Concepts, principles and procedure of industrial engineering

Elements and Performance Criteria

MSME/DTE/30 INDUSTRIAL ENGINEERING

To be competent, the user/individual on the job must be able to:

- PC1.** Industrial engineering and its application
- PC2.** The methods and procedure of plant layout
- PC3.** Productivity and its influence
- PC4.** Method study and its application.
- PC5.** Work measurement and its application.
- PC6.** Value analysis process and its application
- PC7.** Network techniques of cpm& pert
- PC8.** Inspection and inspection department
- PC9.** ISO quality system
- PC10.** Total quality management
- PC11.** The facilities of planning and its needs
- PC12.** • Inventory control, models and application and its need
• for inventory
- PC13.** Need of practice of inventory control
- PC14.** Engineering economics



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/30 INDUSTRIAL ENGINEERING</i>	100	-	-	-
PC1. Industrial engineering and its application	-	-	-	-
PC2. The methods and procedure of plant layout	-	-	-	-
PC3. Productivity and its influence	-	-	-	-
PC4. Method study and its application.	-	-	-	-
PC5. Work measurement and its application.	-	-	-	-
PC6. Value analysis process and its application	-	-	-	-
PC7. Network techniques of cpm& pert	-	-	-	-
PC8. Inspection and inspection department	-	-	-	-
PC9. ISO quality system	-	-	-	-
PC10. Total quality management	-	-	-	-
PC11. The facilities of planning and its needs	-	-	-	-
PC12. • Inventory control, models and application and its need • for inventory	-	-	-	-
PC13. Need of practice of inventory control	-	-	-	-
PC14. Engineering economics	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5118
NOS Name	INDUSTRIAL ENGINEERING
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5117: PRODUCTION, PLANNING AND CONTROL, ESTIMATION & COSTING

Description

Understand Concepts, principles and procedure of production, planning and cost estimation

Scope

The scope covers the following :

- Understand Concepts, principles and procedure of production, planning and cost estimation

Elements and Performance Criteria

MSME/DTE/29 PRODUCTION, PLANNING AND CONTROL, ESTIMATION & COSTING

To be competent, the user/individual on the job must be able to:

- | | |
|--------------|--|
| PC1. | Production and its methods |
| PC2. | Productivity and its influence in industry. |
| PC3. | Material planning |
| PC4. | Process planning |
| PC5. | Routing and scheduling phases of production control |
| PC6. | Loading, dispatching and follow-up |
| PC7. | Cost structure and break even analysis |
| PC8. | Overhead and depreciation |
| PC9. | <ul style="list-style-type: none">• Estimating procedure and estimation of cost of component |
| PC10. | Profit and loss and its importance |



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/29 PRODUCTION, PLANNING AND CONTROL, ESTIMATION & COSTING</i>	100	-	-	-
PC1. Production and its methods	-	-	-	-
PC2. Productivity and its influence in industry.	-	-	-	-
PC3. Material planning	-	-	-	-
PC4. Process planning	-	-	-	-
PC5. Routing and scheduling phases of production control	-	-	-	-
PC6. Loading, dispatching and follow-up	-	-	-	-
PC7. Cost structure and break even analysis	-	-	-	-
PC8. Overhead and depreciation	-	-	-	-
PC9. - Estimating procedure and estimation of cost of - component	-	-	-	-
PC10. Profit and loss and its importance	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5117
NOS Name	PRODUCTION, PLANNING AND CONTROL, ESTIMATION & COSTING
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	2
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5116: ENVIRONMENTAL SCIENCE

Description

Understand the scope and importance of Environmental Sciences.

Scope

The scope covers the following :

- Understand the scope and importance of Environmental Sciences.

Elements and Performance Criteria

MSME/DTE/28 ENVIRONMENTAL SCIENCE

To be competent, the user/individual on the job must be able to:

- PC1.** • Understand the scope and importance of Environmental Sciences.
- PC2.** • Describe the structure and function of ecosystems and the importance of biodiversity
- PC3.** • Identify common sources and types of environmental pollution and their impacts
- PC4.** • Understand the science behind climate change and its global impacts.
- PC5.** • Examine sustainable resource management and conservation practices.
- PC6.** • Explore the role of policies and regulations in environmental protection.
- PC7.** • Analyze the relationship between human population growth and environmental issues.
- PC8.** • Discuss strategies for biodiversity conservation and the importance of protected areas.
- PC9.** • Recognize the significance of environmental education and public awareness.



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/28 ENVIRONMENTAL SCIENCE</i>	100	-	-	-
PC1. Understand the scope and importance of Environmental Sciences.	-	-	-	-
PC2. - Describe the structure and function of ecosystems and - the importance of biodiversity	-	-	-	-
PC3. Identify common sources and types of environmental pollution and their impacts	-	-	-	-
PC4. - Understand the science behind climate change and its - global impacts.	-	-	-	-
PC5. - Examine sustainable resource management and - conservation practices.	-	-	-	-
PC6. Explore the role of policies and regulations in environmental protection.	-	-	-	-
PC7. - Analyze the relationship between human population - growth and environmental issues.	-	-	-	-
PC8. - Discuss strategies for biodiversity conservation and the - importance of protected areas.	-	-	-	-
PC9. - Recognize the significance of environmental education - and public awareness.	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5116
NOS Name	ENVIRONMENTAL SCIENCE
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5110: EMPLOYABILITY SKILL 00

Description

Understand about employability

Scope

The scope covers the following :

- Understand about employability

Elements and Performance Criteria

MSME/DTE/24 EMPLOYABILITY SKILL

To be competent, the user/individual on the job must be able to:

- PC1.**
- communicate effectively using verbal and nonverbal
 - communication etiquette
- PC2.**
- Exhibit how to behave, communicate, and conduct
 - oneself appropriately with all genders and PwD



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/24 EMPLOYABILITY SKILL</i>	100	-	-	-
PC1. - communicate effectively using verbal and nonverbal - communication etiquette	-	-	-	-
PC2. - Exhibit how to behave, communicate, and conduct - oneself appropriately with all genders and PwD	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5110
NOS Name	EMPLOYABILITY SKILL 00
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	2
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5108: BASICS ELECTRICALS & ELECTRONICS

Description

Understand the fundamental principles of electricity, including voltage, current, and resistance, and apply Ohm's law to solve basic electrical problems.

Scope

The scope covers the following :

- Understand the fundamental principles of electricity, including voltage, current, and resistance, and apply
- Ohm's law to solve basic electrical problems.

Elements and Performance Criteria

MSME/DTE/22 BASICS ELECTRICALS & ELECTRONICS

To be competent, the user/individual on the job must be able to:

- PC1.** • Understand the fundamental principles of electricity,
 - including voltage, current, and resistance, and apply Ohm's
 - law to solve basic electrical problems.
- PC2.** • Analyze and design simple electrical circuits, including
 - series and parallel circuits, using Kirchhoff's laws and
 - voltage/current dividers.
- PC3.** • Identify and work with essential electronic components,
 - such as resistors, capacitors, and transistors.
- PC4.** • Describe the difference between digital and analog
 - electronics and apply basic logic gate concepts to digital
 - circuits.
- PC5.** • Analyze and work with AC circuits, including phasors,
 - impedance, and resonance.
- PC6.** • Understand the basics of three-phase systems and the
 - function of transformers.
- PC7.** • Demonstrate practical skills by building and testing
 - simple electronic circuits and completing a basic electronics
 - project.
- PC8.** • Gain confidence in troubleshooting electrical and
 - electronic circuits.
- PC9.** • Be introduced to microcontrollers and basic
 - programming concepts.



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/22 BASICS ELECTRICALS & ELECTRONICS</i>	100	-	-	-
PC1. Understand the fundamental principles of electricity, including voltage, current, and resistance, and apply Ohm's law to solve basic electrical problems.	-	-	-	-
PC2. Analyze and design simple electrical circuits, including series and parallel circuits, using Kirchhoff's laws and voltage/current dividers.	-	-	-	-
PC3. Identify and work with essential electronic components, such as resistors, capacitors, and transistors.	-	-	-	-
PC4. Describe the difference between digital and analog electronics and apply basic logic gate concepts to digital circuits.	-	-	-	-
PC5. Analyze and work with AC circuits, including phasors, impedance, and resonance.	-	-	-	-
PC6. Understand the basics of three-phase systems and the function of transformers.	-	-	-	-
PC7. Demonstrate practical skills by building and testing simple electronic circuits and completing a basic electronics project.	-	-	-	-



Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC8. Gain confidence in troubleshooting electrical and electronic circuits.	-	-	-	-
PC9. Be introduced to microcontrollers and basic programming concepts.	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5108
NOS Name	BASICS ELECTRICALS & ELECTRONICS
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	1
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5107: MATERIAL SCIENCE AND METALLURGY

Description

Describe the basic concepts and principles of material science and metallurgy.

Scope

The scope covers the following :

- Describe the basic concepts and principles of material science and metallurgy.

Elements and Performance Criteria

MSME/DTE/21 MATERIAL SCIENCE AND METALLURGY

To be competent, the user/individual on the job must be able to:

- PC1.** • Describe the basic concepts and principles of material science and metallurgy.
- PC2.** Analyze the atomic and crystalline structure of materials.
- PC3.** • Understand the relationship between microstructure and mechanical properties.
- PC4.** • Explain the behavior of materials under different loading conditions.
- PC5.** • Describe various phase transformations and their impact on material properties.
- PC6.** • Comprehend the properties and applications of common engineering materials.
- PC7.** • Analyze the different methods of material characterization.
- PC8.** • Discuss the principles of metallurgical processes and their applications.
- PC9.** • Apply knowledge of material science and metallurgy to solve real-world engineering problems.



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
MSME/DTE/21 MATERIAL SCIENCE AND METALLURGY	100	-	-	-
PC1. • Describe the basic concepts and principles of material • science and metallurgy.	-	-	-	-
PC2. Analyze the atomic and crystalline structure of materials.	-	-	-	-
PC3. • Understand the relationship between microstructure and • mechanical properties.	-	-	-	-
PC4. • Explain the behavior of materials under different loading • conditions.	-	-	-	-
PC5. • Describe various phase transformations and their impact • on material properties.	-	-	-	-
PC6. • Comprehend the properties and applications of common • engineering materials.	-	-	-	-
PC7. • Analyze the different methods of material • characterization.	-	-	-	-
PC8. • Discuss the principles of metallurgical processes and their • applications.	-	-	-	-
PC9. • Apply knowledge of material science and metallurgy to • solve real-world engineering problems.	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5107
NOS Name	MATERIAL SCIENCE AND METALLURGY
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	2
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024



Qualification Pack

MSME/CSC/N5106: STRENGTH OF MATERIALS

Description

Use the fundamental and principle of strength of material

Scope

The scope covers the following :

- Use the fundamental and principle of strength of material

Elements and Performance Criteria

MSME/DTE/20 STRENGTH OF MATERIALS

To be competent, the user/individual on the job must be able to:

- PC1.** • Concept of classification of load, stresses, strains, types
• of stress and strains.
- PC2.** • Hooke's law, young modulus of elasticity, nominal stress,
• yield point, plastic stage.
- PC3.** Proof stress, working stress, factor of safety.
- PC4.** Bars of varying cross-section.
- PC5.** • Related problems on shear stress and strain, modulus of
• elasticity and rigidity.
- PC6.** The Shear force and bending moment
- PC7.** Theory of simple bending
- PC8.** Moment of inertia and its application.
- PC9.** • Application of moment of inertia, second moment of area
• of common geometrical sections.
- PC10.** Deflection
- PC11.** Understand Euler formula.
- PC12.** • Principle of column and strut, short and long column,
• effective length, slenderness ratio, buckling load,
• crushing load.
- PC13.** • Understand principle of torque and torsion, torsion
• equation, torsional rigidity, angle of twist, hollow and
• solid shaft.
- PC14.** • Principle of torque, power transmitted, angular
• displacement, shaft size, shear stress.
- PC15.** • The principle of leaf spring, deflection, stiffness, strain
• energy stored in leaf spring.



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>MSME/DTE/20 STRENGTH OF MATERIALS</i>	100	-	-	-
PC1. • Concept of classification of load, stresses, strains, types • of stress and strains.	-	-	-	-
PC2. • Hooke's law, young modulus of elasticity, nominal stress, • yield point, plastic stage.	-	-	-	-
PC3. Proof stress, working stress, factor of safety.	-	-	-	-
PC4. Bars of varying cross-section.	-	-	-	-
PC5. • Related problems on shear stress and strain, modulus of • elasticity and rigidity.	-	-	-	-
PC6. The Shear force and bending moment	-	-	-	-
PC7. Theory of simple bending	-	-	-	-
PC8. Moment of inertia and its application.	-	-	-	-
PC9. • Application of moment of inertia, second moment of area • of common geometrical sections.	-	-	-	-
PC10. Deflection	-	-	-	-
PC11. Understand Euler formula.	-	-	-	-
PC12. • Principle of column and strut, short and long column, • effective length, slenderness ratio, buckling load, • crushing load.	-	-	-	-



Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. - Understand principle of torque and torsion, torsion - equation, torsional rigidity, angle of twist, hollow and - solid shaft.	-	-	-	-
PC14. - Principle of torque, power transmitted, angular - displacement, shaft size, shear stress.	-	-	-	-
PC15. - The principle of leaf spring, deflection, stiffness, strain - energy stored in leaf spring.	-	-	-	-
NOS Total	100	-	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	MSME/CSC/N5106
NOS Name	STRENGTH OF MATERIALS
Sector	Capital Goods
Sub-Sector	
Occupation	Technician - Tool & Die
NSQF Level	4.0
Credits	2
Version	1.0
Last Reviewed Date	30/04/2024
Next Review Date	30/04/2027
NSQC Clearance Date	30/04/2024

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

As per QP

Minimum Aggregate Passing % at QP Level : 40

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Minimum Passing % at NOS Level: 40

(Please note: A Trainee must score the minimum percentage for each NOS separately as well as on the QP as a whole.)

Assessment Weightage

Compulsory NOS



Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
MSME/CSC/N5119.PROJECT WORK-TOOL & DIE MAKING	-	100	-	-	100	5
MSME/CSC/N5115.WORKSHOP PRACTICE IV	-	100	-	-	100	5
MSME/CSC/N5114.TOOL DESIGN-PRESS TOOL (ADVANCED)	-	100	-	-	100	5
MSME/CSC/N5113.TOOL DESIGN-PRESS TOOL (ADVANCED)	100	-	-	-	100	5
MSME/CSC/N5112.TOOL DESIGN-PLASTIC MOULD	-	100	-	-	100	5
MSME/CSC/N5111.TOOL DESIGN-PLASTIC MOULD	100	-	-	-	100	5
MSME/CSC/N5109.PROJECT WORK-TOOL & DIE MAKING	-	100	-	-	100	5
MSME/CSC/N5105.WORKSHOP PRACTICEIII	-	100	-	-	100	5
MSME/CSC/N5104.TOOL DESIGN JIGS, FIXTURE&GAUGES	-	100	-	-	100	5
MSME/CSC/N5103.TOOL DESIGN JIGS FIXTURE&GAUGES	100	-	-	-	100	5
MSME/CSC/N5102.TOOL DESIGN-PRESS TOOL	-	100	-	-	100	5
MSME/CSC/N5101.TOOL DESIGN-PRESS TOOL	100	-	-	-	100	5
MSME/CSC/N5120.EMPLOYBILITY SKILL 000	100	-	-	-	100	5
MSME/CSC/N5118.INDUSTRIAL ENGINEERING	100	-	-	-	100	5
MSME/CSC/N5117.PRODUCTION, PLANNING AND CONTROL, ESTIMATION & COSTING	100	-	-	-	100	5
MSME/CSC/N5116.ENVIRONMENTAL SCIENCE	100	-	-	-	100	5



Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
MSME/CSC/N5110.EMPLOYABILITY SKILL 00	100	-	-	-	100	5
MSME/CSC/N5108.BASICS ELECTRICALS & ELECTRONICS	100	-	-	-	100	5
MSME/CSC/N5107.MATERIAL SCIENCE AND METALLURGY	100	-	-	-	100	5
MSME/CSC/N5106.STRENGTH OF MATERIALS	100	-	-	-	100	5
Total	1200	800	-	-	2000	100



Qualification Pack

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training



Qualification Pack

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.



Qualification Pack

Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.